

MINIATURE OUTPUT PENTODE

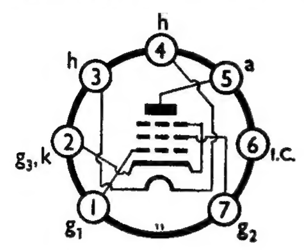
6·3V INDIRECTLY HEATED

A2134

MARCH, 1955

The A2134 is the commercial equivalent of CV2179.
It is particularly suitable for use as the series valve in voltage stabilising equipment.

BASE CONNECTIONS AND VALVE DIMENSIONS



View from underside of base.

Base : B7G
Bulb : Tubular

Overall length :	64—70	mm.
Seated length :	58—64	mm.
Max. diameter :	19	mm.

HEATER

V_h	6·3	V
I_h	0·635	A

MAXIMUM RATINGS (design centre)

Pentode connection

V_a	300	V
V_{g2}	300	V
V_{h-k} (pk)	150	V
p_a	9	W
p_{g2}	3	W

Triode connection

$V_{a,\ g2}$	300	V
$p_{a,\ g2}$	12	W

CHARACTERISTICS

Pentode connection

V_a	165	V
V_{g2}	165	V
V_{g1}	−9	V
μ	220	
r_a	23·2	kΩ
g_m	9·5	mA/V

Triode connection

$V_{a,\ g2}$	165	V
V_{g1}	−9	V
μ	10	
r_a	835	Ω
g_m	12	mA/V

CAPACITANCES (of unscreened valve) :

$c_{a\text{-}all}$ 10 pF $c_{g1\text{-}all}$ 10 pF $c_{a\text{-}g1}$ 0·3 pF

TYPICAL OPERATION

Pentode Connection

Single Valve. Class A

% full input	45	100	100	75	50	%
V_a	100	150	165	165	165	V
V_{g2}	100	150	165	165	165	V
V_{g1} (o)	−4·6	−7·8	−9·3	−10	−11·4	V
I_a (o)	39	56	53	40	29	mA
I_{g2} (o)	6·5	9·5	9	7·2	5·4	mA
R_k	100	120	150	220	330	Ω
v_{in} (pk)	5	7	8·5	6·7	4·7	V
R_L	2·5	3	3	4	6	kΩ
P_{out}	1·45	3·5	4·1	2·84	2·3	W
D	8·6	11	10	10	10	%

The conditions given in the last two columns are those obtained when the valve is over-biased. They are useful when H.T. power is limited and reduced power output can be tolerated.

MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED

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Two Valves. Push-pull, Class AB_1

Data per pair unless otherwise stated.

V_a	100	165	200	250	V
V_{g2}	100	165	165	165	V
V_{g1} (o)	−5	−11·9	−10	−11·2	V
I_a (o)	70	107	87	66	mA
I_a (max. sig.)	73	110	100	80	mA
I_{g2} (o)	12	18	14	10	mA
I_{g2} (max. sig.)	15	36	25	24	mA
R_k (per valve)	120	150	200	300	Ω
v_{in} (pk) (g_1-g_1)	11	20	25	30	V
R_L (a−a)	3	3	4·5	7·5	kΩ
P_{out}	2·25	9	11·5	13·3	W
D	3·3	4·6	4	4·5	%

Triode Connection

Two Valves. Push-pull, Class AB_1,

Data per pair unless otherwise stated.

$V_{a,g2}$	165	V
V_{g1} (o)	−10·5	V
$I_{a,g2}$ (o)	65	mA
$I_{a,g2}$ (max. sig.)	74	mA
R_k (per valve)	330	Ω
v_{in} (pk) (g_1-g_1)	24	V
R_L (a−a)	3	kΩ
P_{out}	2·6	W
D	1·4	%

GRID RESISTOR

The maximum permissible D.C. resistance from control grid to cathode is limited to 0·27 MΩ ±20% for auto-bias and 0·1 MΩ for fixed bias applications.

SCREENING

No internal or external screening is fitted to the valve.

MOUNTING

Any position.

RETAINING

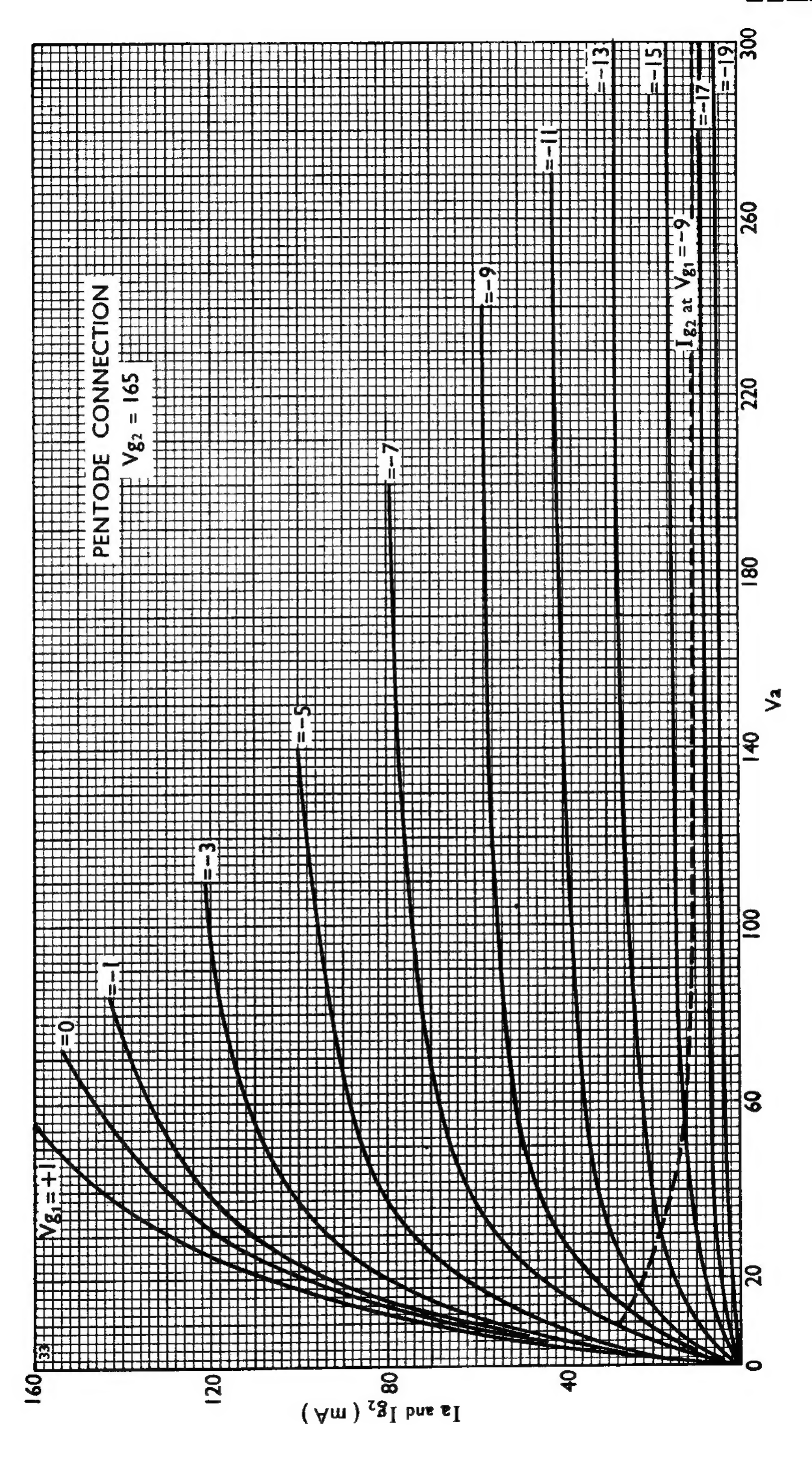
The use of a retaining device is recommended.

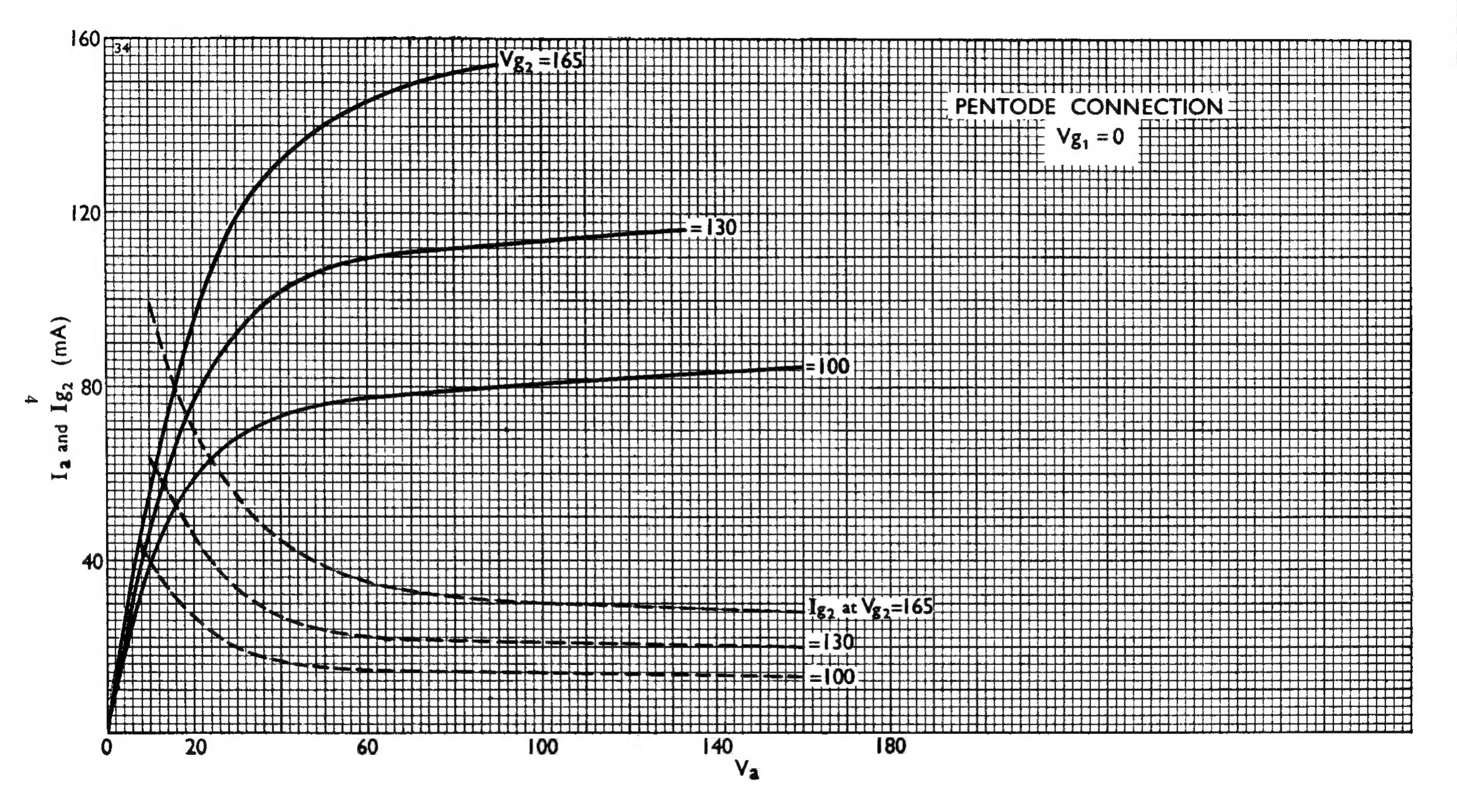
VENTILATION

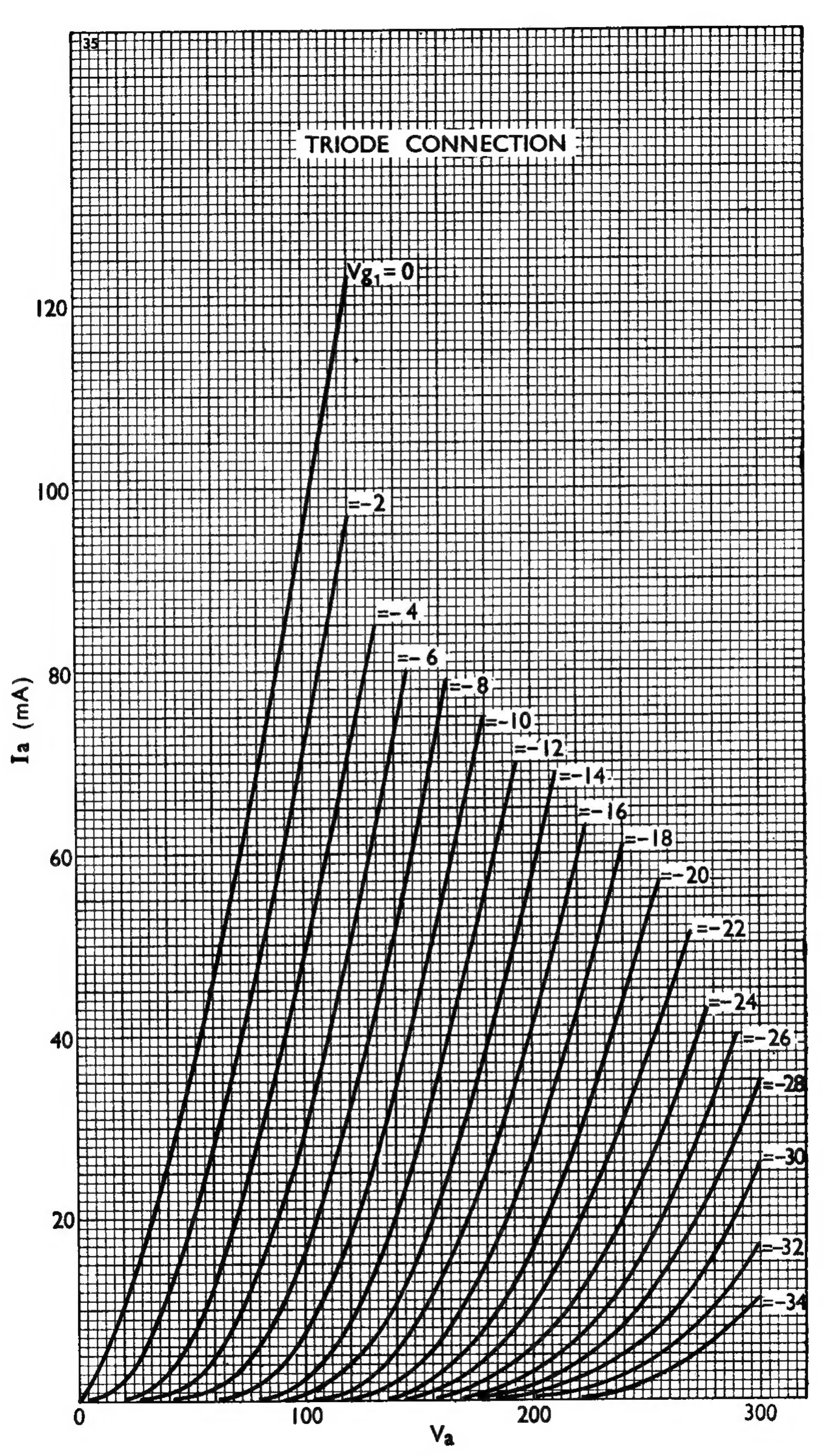
Free air circulation around the bulb is preferable. If a retaining device in the form of a canister is employed, the surfaces should be blackened. The temperature of the hottest part of the bulb must not exceed 250°C.

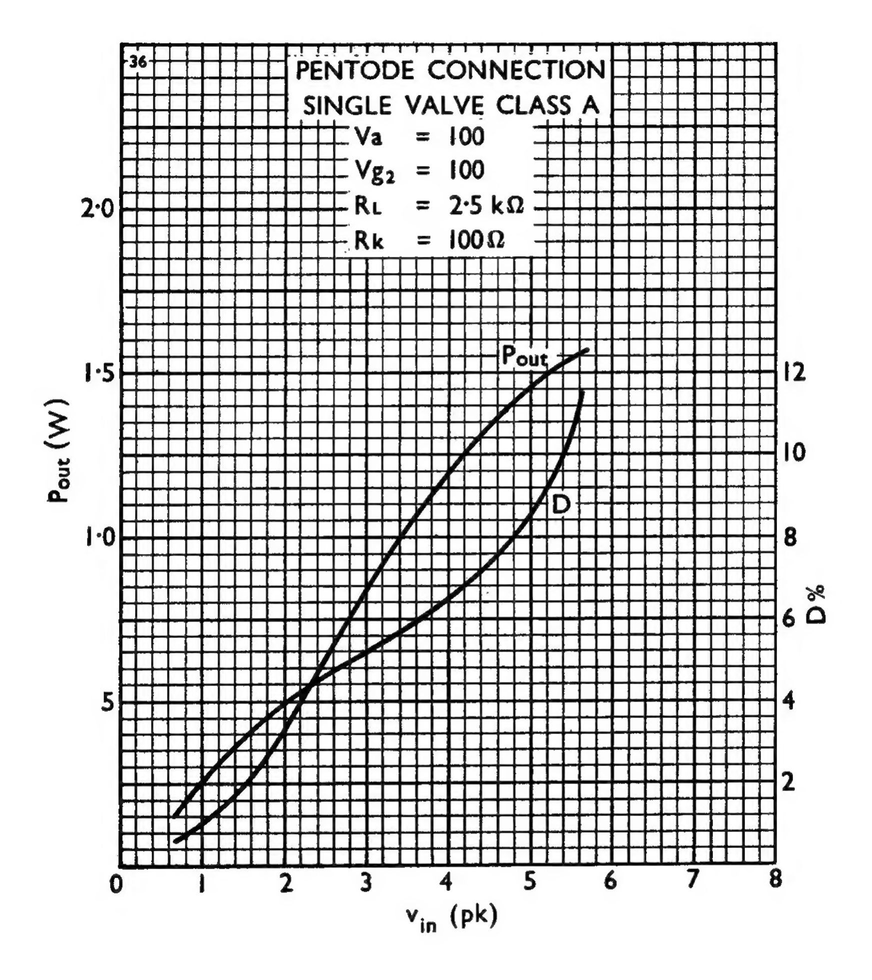
MICROPHONY

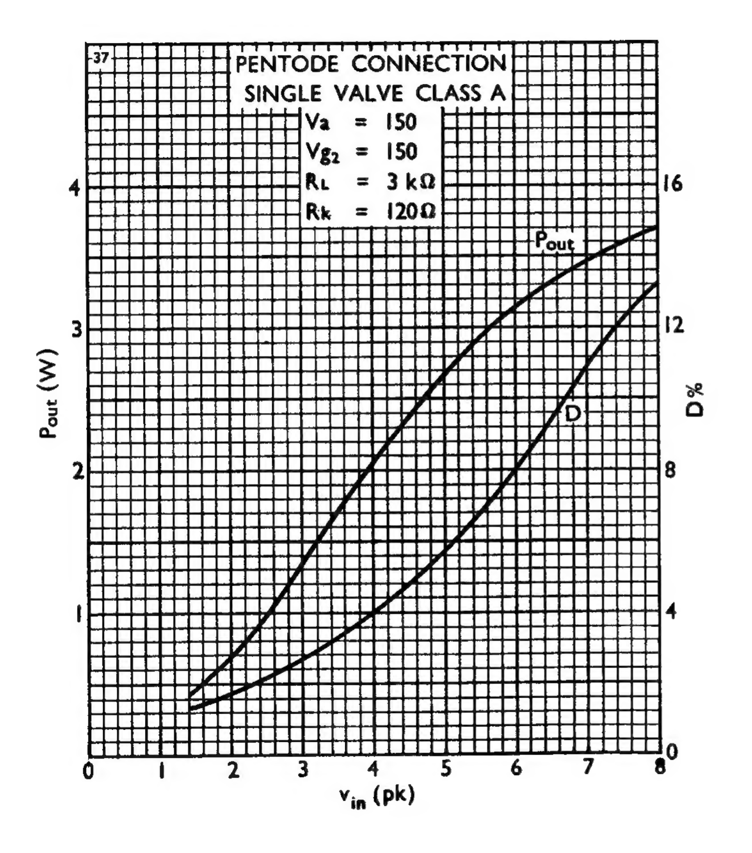
Free from microphony in all normal receiver applications.

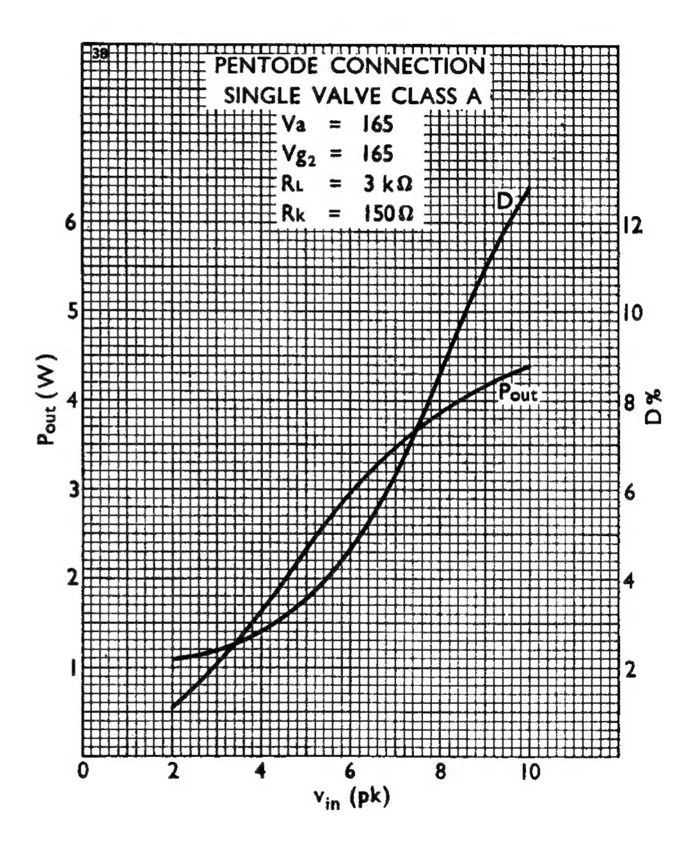

PENTODE CONNECTION
V_{g2} = 165
V_{g1} = +1
=0
=−1
=−3
=−5
=−7
=−9
=−11
=−13
=−15
=−17
=−19
I_{g2} at V_{g1} = −9
Ia and I_{g2} (mA)
Va
0
20
60
100
140
180
220
260
300
40
80
120
160
33

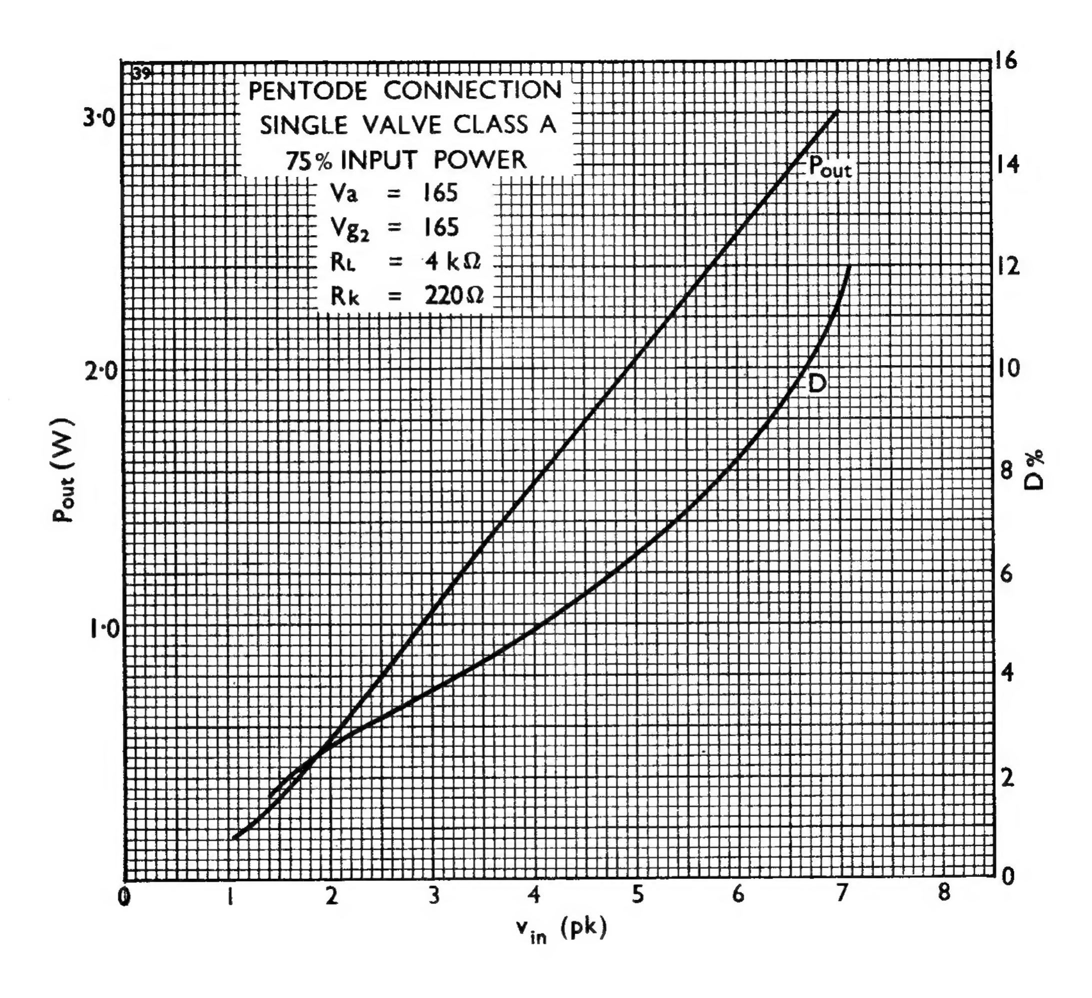

PENTODE CONNECTION
$V_{g1} = 0$
$V_{g2} = 165$
=130
=100
I_{g2} at $V_{g2} = 165$
=130
=100
I_a and I_{g2} (mA)
160
120
80
40
0
20
60
100
140
180
V_a
34

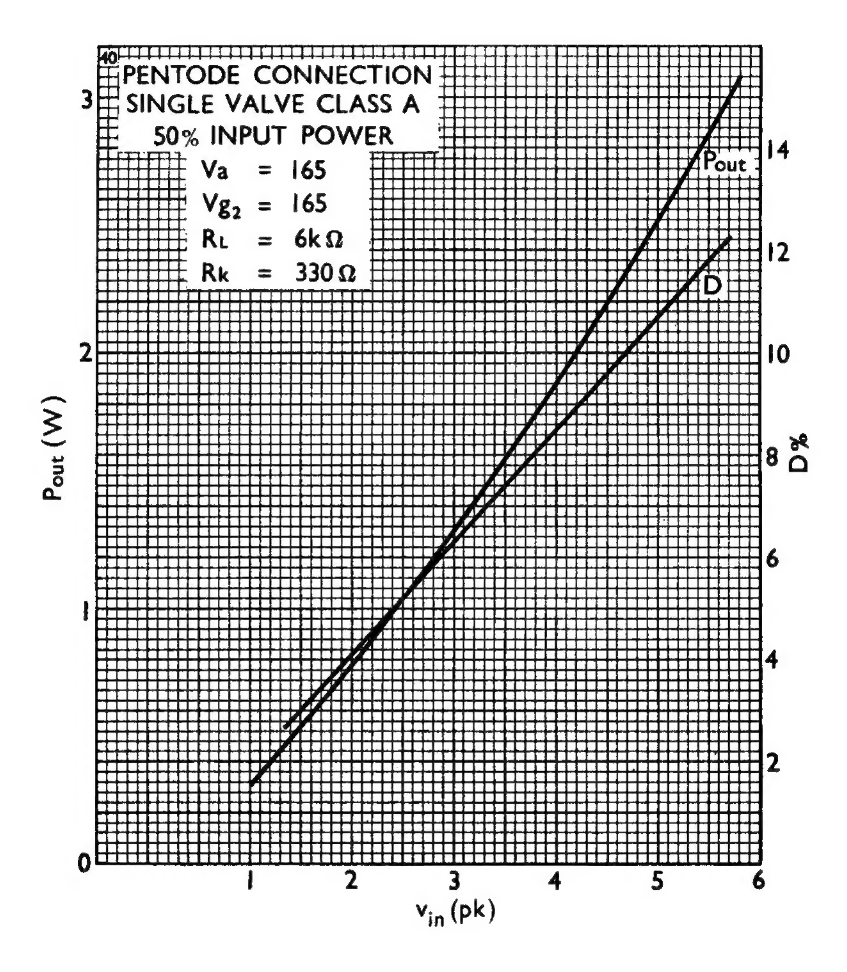

TRIODE CONNECTION
35
Vg1=0
=-2
=-4
=-6
=-8
=-10
=-12
=-14
=-16
=-18
=-20
=-22
=-24
=-26
=-28
=-30
=-32
=-34
120
100
80
60
40
20
Ia (mA)
0
100
200
300
Va


36
PENTODE CONNECTION
SINGLE VALVE CLASS A
Va = 100
Vg2 = 100
RL = 2·5 kΩ
Rk = 100Ω
Pout
D
Pout (W)
2·0
1·5
1·0
5
12
10
8
6
4
2
D %
0
1
2
3
4
5
6
7
8
vin (pk)

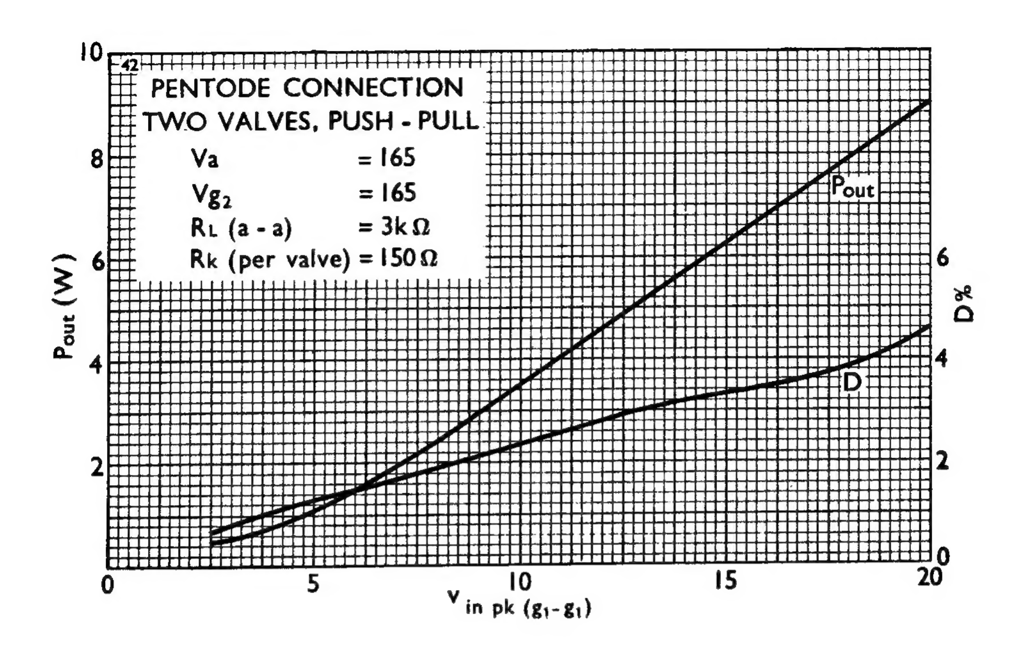

37
PENTODE CONNECTION
SINGLE VALVE CLASS A
Va = 150
Vg2 = 150
RL = 3 kΩ
Rk = 120Ω
Pout
D
D %
16
12
8
4
0
Pout (W)
4
3
2
1
0
1
2
3
4
5
6
7
8
vin (pk)

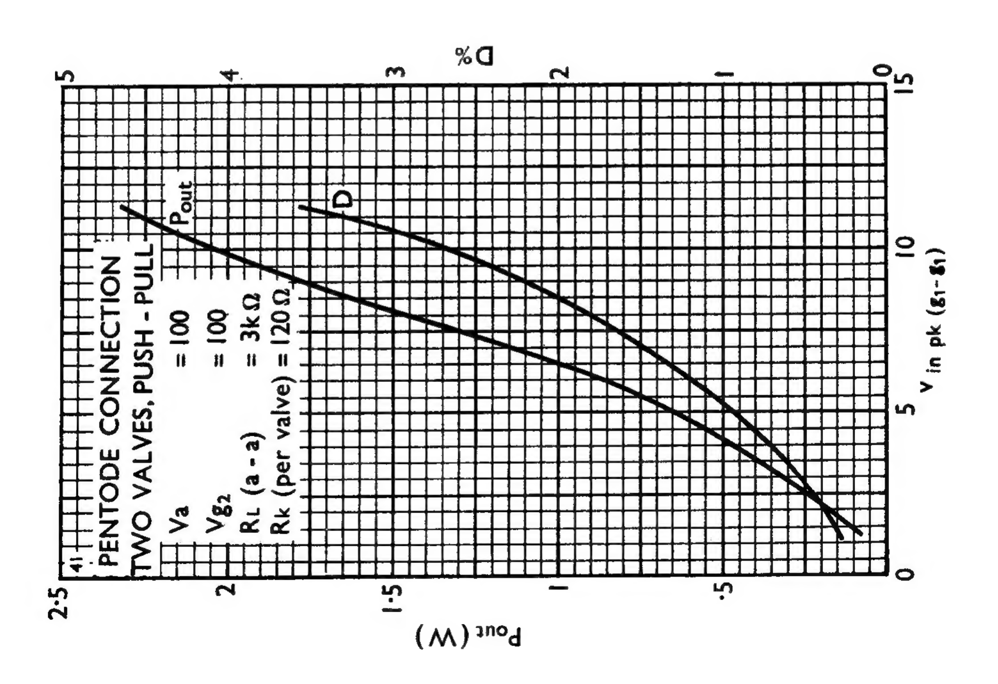

38
PENTODE CONNECTION
SINGLE VALVE CLASS A
Va = 165
Vg2 = 165
RL = 3 kΩ
Rk = 150Ω
D
Pout
D %
12
10
8
6
4
2
Pout (W)
6
5
4
3
2
1
0
2
4
6
8
10
vin (pk)

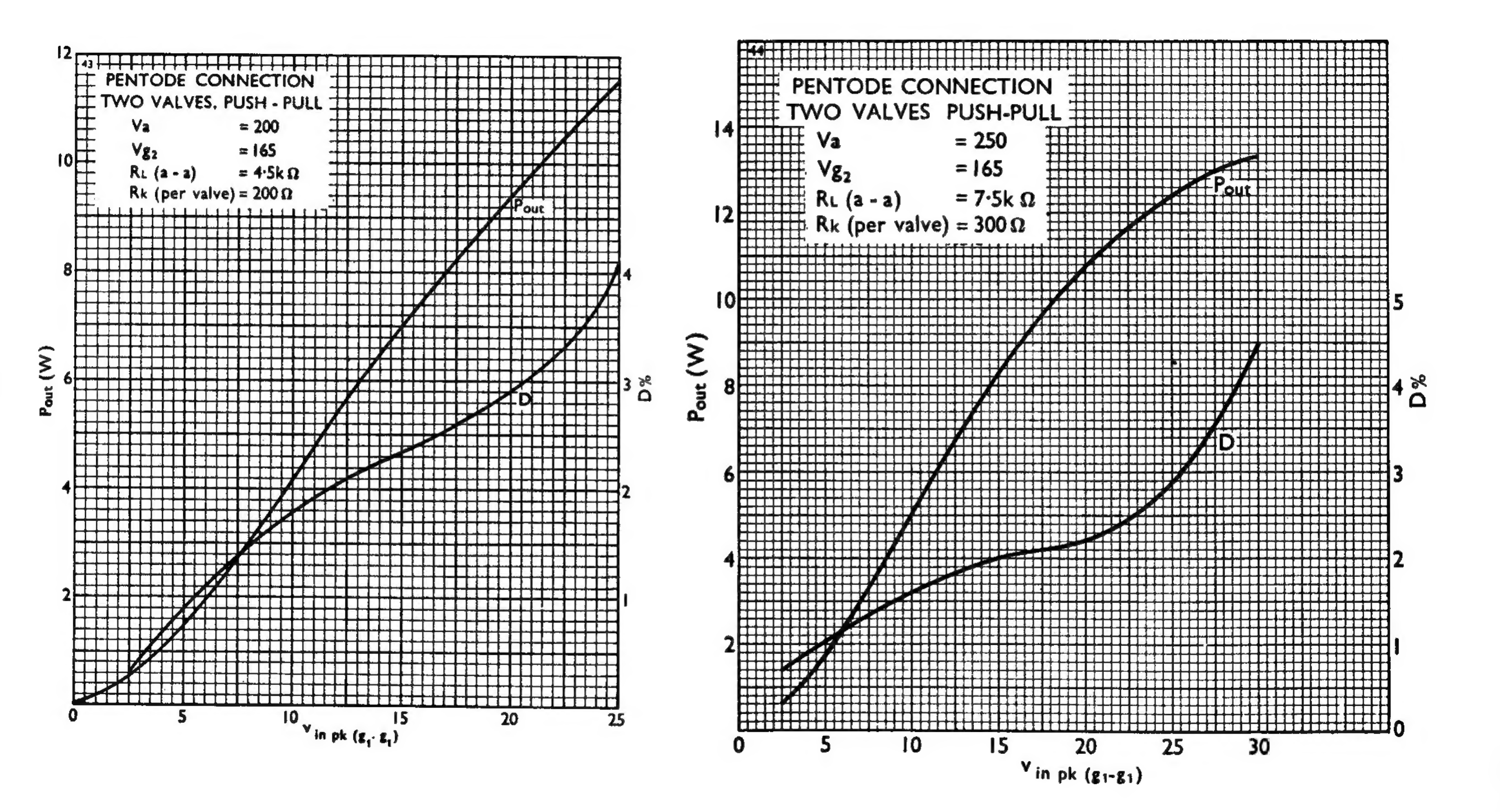

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PENTODE CONNECTION
SINGLE VALVE CLASS A
75% INPUT POWER
Va = 165
Vg2 = 165
RL = 4 kΩ
Rk = 220Ω
Pout
D
Pout (W)
D %
vin (pk)
1·0 2·0 3·0
0 2 4 6 8 10 12 14 16
0 1 2 3 4 5 6 7 8



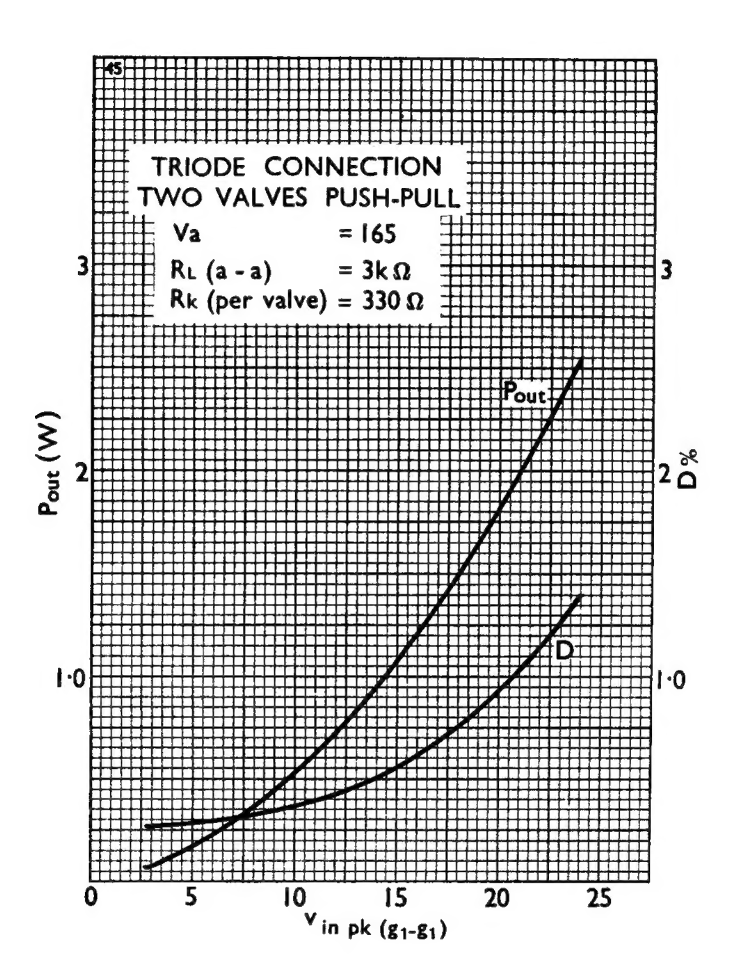
PENTODE CONNECTION
SINGLE VALVE CLASS A
50% INPUT POWER
Va = 165
Vg2 = 165
RL = 6kΩ
Rk = 330Ω
Pout
D
Pout (W)
D%
vin (pk)
0
1
2
3
4
5
6
2
4
6
8
10
12
14


PENTODE CONNECTION
TWO VALVES, PUSH - PULL
Va = 165
Vg2 = 165
RL (a - a) = 3kΩ
Rk (per valve) = 150Ω
Pout (W)
D%
Pout
D
V in pk (g1-g1)
42


PENTODE CONNECTION
TWO VALVES, PUSH - PULL
Va = 100
Vg2 = 100
RL (a - a) = 3kΩ
Rk (per valve) = 120Ω
Pout (W)
D%
Pout
D
V in pk (g1-g1)
41



43
PENTODE CONNECTION
TWO VALVES, PUSH - PULL
Va = 200
Vg2 = 165
RL (a - a) = 4·5k Ω
Rk (per valve) = 200 Ω
Pout
D
Pout (W)
D %
v in pk (g1-g1)
44
PENTODE CONNECTION
TWO VALVES PUSH-PULL
Va = 250
Vg2 = 165
RL (a - a) = 7·5k Ω
Rk (per valve) = 300 Ω
Pout
D
Pout (W)
D %
v in pk (g1-g1)



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